AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A machine-implemented method comprising the steps of:

generating, based on a first set of data associated with a plurality of dimensions, a second set of data; and

storing said second set of data in a tangible volatile memory or a tangible non-volatile memory;

wherein the first set of data is not dense relative to a first dimension of the plurality of dimensions;

wherein the second set of data is dense relative to the first dimension;

wherein the first set of data includes a plurality of subsets of data; ~~and~~

wherein the step of generating includes separately performing, for each particular subset in the plurality of subsets, a ~~plurality of~~ mini join operation[[s]] that ~~, wherein each mini join operation~~ involves an outer join between a third set of data and ~~a different one of~~ the particular subset~~s of data~~; and

wherein separately performing the mini join operation for each particular subset in the plurality of subsets generates the second set of data.

2. (original) The method of claim 1, wherein the first set of data includes rows that are associated with dimension value combinations in which the dimension value combinations are combinations of dimension values selected from the plurality of dimensions,

wherein the second set of data includes corresponding rows for the dimension value combinations that correspond to the rows of the first set of data,

wherein the corresponding rows are associated with the dimension value combinations, and

wherein the step of generating comprises the steps of

checking if a corresponding row exists in the second set of data for a set of dimension value combinations, wherein the set of dimension value combinations is dense with respect to one dimension; and

creating the row if the corresponding row does not exist.

3. (original) The method of claim 2, wherein the step of checking is performed within a set of nested loop instructions that perform one loop for each dimension value combination of the set of dimension value combinations.

4. (original) The method of claim 1, wherein each of the subsets of data is a single row of data.

5. (original) The method of claim 1, wherein each of the subsets of data is a partition of the first set data, and is associated with a single dimension value selected from one dimension of the plurality of dimensions.

6. (original) The method of claim 1, wherein the step of generating is performed in response to detecting a data manipulation language statement.

7. (original) The method of claim 1, wherein the step of generating includes performing the outer join on a first subset using a first processor and performing the outer join on a second subset using a second processor that is different than the first processor.

8. (original) The method of claim 7, wherein the outer join is a right outer join.

9. (original) The method of claim 8, wherein the outer join is a left outer join.

10. (original) The method of claim 1, wherein the step of generating is performed by an SQL engine.

11. (original) The method of claim 1, wherein the step of generating includes receiving an expression that indicates a partitioning key for partitioning the first set of data.

12. (original) The method of claim 1, wherein the outer join is associated with join conditions that includes a Boolean expression.

13. (Previously Presented) The method of claim 1, wherein said first set of data includes a first set of rows; and

wherein said outer join is between said first set of rows and a second set of rows, and the step of generating includes sending each of a plurality of processes a subset of said first set of rows and all of said second set of rows.

14. (original) The method of claim 13 wherein the generating includes

specifying at least one dimension of the plurality of dimensions, and

hash partitioning the first set of data with respect to the dimension specified.

15. (original) The method of claim 1, further comprising:

detecting a construct that includes a condition limiting which dimension value combinations are included in the second set of data; and

in response to detecting the other construct, performing the operation only with respect to the dimension value combinations to which the second set of data was limited.

16. (original) The method of claim 1, wherein the first set of data is associated with a plurality of dimensions, the second set is associated with the plurality of dimensions, and the second set of data is denser with respect to one of the plurality of dimensions.

17. (Currently Amended) A machine-implemented method comprising:

generating, based on a first set of data associated with a plurality of dimensions, a second set of data; and

storing said second set of data in a tangible volatile memory or a tangible non-volatile memory;

wherein the first set of data is not dense relative to a first dimension of the plurality of dimensions;

wherein the second set of data is dense relative to the first dimension; and

wherein the generating is performed without sorting the first set of data for distinct values of a second dimension of the plurality of dimensions.

18. (original) The machine-implemented method of claim 17, wherein the generating is performed without performing a sort of the first set of data in which the sort of the first set of data is used to find distinct values of a second dimension of the plurality of dimensions.

19. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 1.

20. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 2.

21. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 3.

22. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by

one or more processors, causes the one or more processors to perform the method recited in Claim 4.

23. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 5.

24. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 6.

25. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 7.

26. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 8.

27. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 9.

28. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 10.

29. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 11.

30. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 12.

31. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 13.

32. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 14.

33. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 15.

34. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 16.

35. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 17.

36. (Currently Amended) A tangible volatile or tangible non-volatile machine-readable ~~storage~~ medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 18.

37. (Currently Amended) A system comprising:

one or more processors; and

a tangible volatile or tangible non-volatile machine-readable medium carrying one or more sequences of instructions, which when executed by the one or more processors, causes the one or more processors to perform the method recited in Claim 1.

38. (Currently Amended) A system comprising:

one or more processors; and

a tangible volatile or tangible non-volatile machine-readable medium carrying one or more sequences of instructions, which when executed by the one or more processors, causes the one or more processors to perform the method recited in Claim 17.

39. (Currently Amended) A system comprising:

one or more processors; and

a tangible volatile or tangible non-volatile machine-readable medium carrying one or more sequences of instructions, which when executed by the one or more processors, causes the one or more processors to perform the method recited in Claim 18.

40-41. (Canceled)

42. (New) The method of Claim 1, wherein:

the first set of data comprises a plurality of rows;

each row in the plurality of rows comprises at least (a) a value from the first dimension, (b) a value from a second dimension of the plurality of dimensions, and (c) a value from a third dimension of the plurality of dimensions;

the first set of data comprises a particular row that comprises a first value from the first dimension, a second value from the second dimension, and a third value from the third dimension;

the first set of data lacks any row that comprises each of: (a) a fourth value from the first dimension, (b) the second value, and (c) the third value; and

for each combination of values, from the second and third dimensions, that is also in a row in the plurality of rows, and for each particular value in the first dimension, the second set of data comprises at least one row that comprises both (a) that combination of values from the second and third dimensions and (b) that particular value in the first dimension.

43. (New) A tangible volatile or tangible non-volatile machine-readable medium carrying one or more sequences of instructions, which when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 42.